

**ANNUAL SEA TURTLE MONITORING REPORT
MAINTENANCE DREDGING/BEACH NOURISHMENT
ATLANTIC COAST – Under SA RBO
JACKSONVILLE DISTRICT
FISCAL YEAR 2006**

**ANNUAL SEA TURTLE MONITORING REPORT
JACKSONVILLE DISTRICT
FOR ATLANTIC COAST PROJECTS
MAINTENANCE DREDGING AND BEACH NOURISHMENT - FISCAL YEAR 2006**

INTRODUCTION

This report is submitted in fulfillment of requirements of the Endangered Species Act and the Section 7 Consultation - Biological Opinion for the “Continued use of hopper dredging of channels and borrow areas in the southeastern United States”. (No Consultation Number provided) dated September 25, 1997 (that incorporates the August 25, 1995 Biological Opinion for these activities). Specifically this report, summarizing hopper dredging operations in Fiscal Year (FY) 2006 within the Jacksonville District, is submitted in compliance with reasonable and prudent measure No. 6 – Reporting found in the August 25, 1995 Opinion.

The following hopper maintenance dredging/shore protection projects were started in FY 2005, but extended into FY 2006.

Broward County Shore Protection Project

Segment III – John U. Lloyd State Park 25 November 2005 – 6 February 2006

The following hopper maintenance dredging/shore protection projects (or the portion of the project that used a hopper dredge) were completed in FY 2006.

Palm Beach Harbor	28 November 2005 – 7 December 2005
Kings Bay Entrance Channel	11 February 2006 – 25 February 2006
Miami Harbor	24 March 2006 – 10 April 2006
Mayport Naval Station	9 December 2005 – 7 April 2006
Jacksonville Harbor	1 July 2006 – 10 August 2006

The following hopper maintenance dredging/shore protection project was stated in FY 2006 but will be completed in FY 2007.

Jupiter Island Beach Nourishment	3 February 2006 – 27 April 2006; expected to resume dredging in FY2007
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The use of hopper dredges to maintain these navigation and shore protection projects is necessary because of three factors: safety, weather conditions and productivity. These factors are closely interrelated; however, the emphasis is placed on safety. For instance at Kings Bay – due to the rough

seas, all types of dredges, except for hopper dredges, have been forbidden to work in the area.

The dredges operating in navigation channels must be highly mobile to rapidly maneuver out of the way of other vessels. Pipeline cutterhead dredges are not self-propelled, and are held into position with spuds. Furthermore, the swing of the cutterhead is controlled by cables attached to the cutterhead arm. These cables are anchored along the outer limits of the channel to be dredged. Prior to moving the dredge, tenders must raise the anchors, and a towboat must be fastened to the dredge. These characteristics prevent the pipeline dredge from quickly moving out of the channel when other vessels approach. From a practical standpoint, dredges are generally not relocated for normal ship traffic; rather, dredging may be interrupted, but the dredge remains a stationary obstruction in half of the channel. This situation is encountered in inland bays and waterways. The use of hopper dredges along the Atlantic coast avoids such a stationary obstruction.

Weather conditions also affect the safety of the dredge and crew. Pipeline dredges were not designed to operate in open-sea conditions, and most shore protection projects borrow areas require vessels that can operate in open-sea conditions. Due to the reasons stated above, these dredges cannot rapidly demobilize in harsh weather, for example, as a hurricane approaches. The pipelines used to transport the dredged material to the placement sites would also be highly susceptible to breaking during rough weather. Even in relatively sheltered bays, cutterhead dredges often stop dredging in rough weather, and during frontal passages. During these periods, only water is pumped to keep tension on the pipelines to prevent breaking. In the open Atlantic Ocean, this precaution would not be effective, even if it were possible to leave the dredge offshore. During relatively calm weather conditions, only the largest cutterhead dredges would be able to operate efficiently. Sea swells make it difficult to control the depth of the cutterhead; consequently, this affects the dredging operation.

Productivity of the dredging operation is important because the purpose of dredging is to remove shoals and provide a safe depth for waterborne traffic. The use of pipeline dredges in the open Atlantic Ocean would result in frequent relocations, or other interruptions, due to weather and traffic conditions. Consequently, it would take longer to remove shoals, which present a hazard to safe navigation. The longer the time to remove the shoals, the longer a dredge must be on site to maintain the channel. The presence of the dredge and pipeline, themselves, present an obstruction to safe navigation. For these reasons, hopper dredges are used to maintain deep-draft entrance channels and construct many shore protection projects in the Jacksonville District.

The Jacksonville District schedules hopper-dredging operations during the required December 1 through April 15 window, for Kings Bay, Jacksonville (St. John's River and Mayport), St. Augustine and Ponce de Leon Inlet. However, it is impossible to schedule all hopper-dredging projects during this time frame, due to the availability of the hopper dredge fleet. Hopper dredging priorities for the Jacksonville

District are developed in concert with other Corps of Engineers Districts that conduct these operations along the Atlantic and Gulf Coasts. The priorities are determined after considering the dredging needs and resident sea turtle populations within the various Districts.

TURTLE MONITORING PROGRAM

A result of the consultation process was the requirement to document turtle takes by the dredges. In order to accomplish this task, before hopper dredging operations commenced, they were equipped such that all inflows and overflows would be screened. The configuration and location of the screens depends upon the construction of the dredge. The starting mesh size of this screening is 4-inches by 4-inches. Additionally, around-the-clock monitoring by NMFS-approved turtle inspectors was conducted to identify any turtles or turtle parts that were caught on these screens. Draghead deflectors were also deployed to deflect any turtles that may happen to be in, or near, the path of the draghead during excavation. The design of the deflectors is such that a sediment riffle is created ahead of the draghead, cushioning any contact with turtles thereby preventing injuries.

The observers inspected and cleaned all inflow and overflow screening at the end of each load. Dragheads and deflectors were also inspected immediately after each load, and dredge personnel were informed if repairs were necessary. Data sheets were completed daily, detailing all biological samples and debris found in the screening and dragheads. The observers also recorded the start, end and discharge times for each load, the specific location of the dredging area, the type of material being dredged, weather, tide and water temperature data, the condition of the screening, and any other pertinent information. Any sea turtle encounters or takes would be described on a separate incident report form. Additionally, all incidents would be photographed and diagrams would be made of the specimen. Once documentation has been collected, dead specimens are discarded by the NMFS-approved observer and disposed of at the dredged material placement site, thereby ensuring that these same samples would not wash ashore or be taken again by the dredge.

A bridge watch for sea turtles and marine mammals was maintained during all daylight hours, except when the observer was off the bridge, cleaning and inspecting the screens and dragheads. All sightings of cetaceans and sea turtles were recorded in a bridge watch logbook.

If a sea turtle is taken by a hopper dredge, a risk assessment will be undertaken in partnership between the District, the dredger and/or his engineering or environmental consultant, and the permittee and/or his engineering or environmental consultant (if applicable). The risk assessment may include a temporary cessation of the dredging operations, but will include a review of the mandatory SI data, a review of the draghead functionality, and a review of District and Gulf-wide sea turtle lethal takes to date. Once the risk assessment is completed, dependent upon the findings, the project may be authorized to reinitiate dredging operations, recommendations for modifications to the dredge physical plant may be

made, recommendations for modifications to the dredging process may be made, or dredging operations may be suspended for a specified period of time.

SCREEN CONFIGURATIONS

Turtle monitoring activities were conducted aboard eight different hopper dredges during FY 2006. These were the *Atchafalaya*, *Liberty Island*, *Eagle I*, *Stuyvesant*, *Dodge Island*, *Bayport*, *Northerly Island*, *Columbia*. Each of these vessels was required to have rigid draghead deflectors, and 100% inflow screening or overflow screening with openings starting at 4" x 4."

PROJECTS

Continued from FY 2005

Broward County Shore Protection Project

Liberty Island

The southern portion of the project (defined by Hallendale, Hollywood and Dania Beaches) were dredged between May 14, 2005 and November 4, 2005 and the details were included in the FY2005 Annual Report. The northern portion of the project area, John U. Lloyd State Park began dredging on November 25, 2005 and finished dredging on February 6, 2006. Material was dredged from five borrow areas located northeast of the project area and enumerated in the EIS and PIR (previously discussed in the 2005 report), as well as the entrance channel for Port Everglades where a shoal had developed. This shoal removal was coordinated under an Environmental Assessment (EA) and FONSI completed by the Corps on April 28, 2005. The EA can be accessed at [http://planning.saj.usace.army.mil/envdocs A-D/Broward/PortEvergladesOperations/EAOMPortEvergladesFinalEA_2005.pdf](http://planning.saj.usace.army.mil/envdocs/A-D/Broward/PortEvergladesOperations/EAOMPortEvergladesFinalEA_2005.pdf). A total of 163 loads totaling 547,000 cubic yards (CY) of beach quality sand were collected and deposited on the Federally authorized shore protection template inside John U. Lloyd State Park.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Great Lakes Dock and Dredge Co. During the performance of this dredging no lethal turtle takes occurred.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at <http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=403&Code=Project>

Projects in FY 2006
Palm Beach Harbor
Atchafalaya

On November 28, 2005 the contract hopper dredge *Atchafalaya* began work on the maintenance dredging of Palm Beach Harbor. The contractor dredged 70,689 CY of shoal material. The required depth of dredging was 33 feet below Mean Low Water (MLW) with two feet of allowable overdepth dredging.

The dredge operated under a “rental contract”. Instead of being paid by CY, the contractor is paid by the number of days it takes to complete the project. In this case, it took the dredge 10 days to remove the shoal material consisting of 80 loads. The dredged material was placed in the nearshore disposal area.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by East Coast Observers, Inc. under a subcontract to the dredging contractor, B+B Dredging. During the performance of this dredging, no lethal takes were observed. Surface water temperatures were 24 °C for the life of the project.

Detailed information for this project can be accessed from the Corps’ Sea Turtle Data Warehouse website – specifically at <http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=460&Code=Project>

Kings Bay Entrance Channel
Stuyvesant

On February 11, 2006 the contract hopper dredge *Stuyvesant* began work on the Kings Bay/Fernandina Harbor Entrance Channel. The contractor dredged 500,000 CY of shoal material. The required depth of dredging was 49 feet below MLW with two feet of allowable overdepth dredging inside the Entrance Channel and 47 feet MLW with two feet of overdepth inside of the jetties.

Dredging began on February 11, 2006, and was completed on February 25, 2006. A total of 65 loads of dredged material were collected during 15 dredging days and deposited in a settling basin on the north side of the entrance channel, in the nearshore disposal area located adjacent to Amelia Island and in the EPA designated Ocean Dredge Material Disposal Site (ODMDS). No material was placed on the beach.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by REMSA, Inc. under a subcontract to the

dredging contractor, Bean Styvesant, LLC.

During the performance of this dredging, three lethal takes were observed. The first take occurred on 22 February 2006 and was an unknown age loggerhead turtle of unknown sex found 2000 hours in load #54. Surface water temperature at time of take was 16.0°C.

The second take occurred on 25 February 2006 and was an unknown age and sex loggerhead found in the aft inflow screening at 0940 hours in load #65. Surface water temperature at the time of take was 16.0°C.

The third take occurred at the Kings Bay project approximately 25 February 2006, however the Kemp's ridley turtle was not discovered until the dredge had left the Kings Bay project and moved to the Mayport project to the south. An observer from Coastwise consulting discovered the carcass on 27 February 2006 while checking the screens for the Mayport project. The carcass was moderately decomposed, and staff of the Jacksonville District determined that the take likely occurred at Kings Bay. Due to the fact that the take was not discovered initially when it occurred, the specific data concerning the take are not available.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at <http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=420&Code=Project>.

Miami Harbor

Northerly Island

On March 24, 2006 the contract hopper dredge *Northerly Island* began work on the maintenance dredging of Miami Harbor. The contractor dredged 64,440 CY of shoal material. The required depth of dredging was 44 feet below MLW with one foot of allowable overdepth dredging inside the Entrance Channel and inside of the jetties and 36 feet below MLW with one foot of allowable overdepth dredging in the Main Turning Basin.

Dredging began on March 24, 2006, and was completed on April 10, 2006. A total of 71 loads of dredged material were collected during 18 dredging days and deposited in the EPA designated ODMDS.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Great Lakes Dock and Dredge Co. During the performance of this dredging, no lethal takes were observed. Surface water temperatures ranged from 20 °C -23.3 °C for the

life of the project.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at <http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=436&Code=Project>

Mayport Naval Station

Stuyvesant, Northerly Island, Eagle I, Bayport

On December 9, 2005 dredging began for the Mayport Entrance Channel and Turning Basin maintenance dredging project under contract to Manson Dredging. Due to equipment availability issues, Manson subcontracted with Great Lakes Dock and Dredge, Co and Bean-Stuyvesant, LLC for additional equipment support. The four dredges that were contracted for this project were:

<i>Eagle I</i>	<i>9 December 2005 – 13 December 2005</i>
<i>Northerly Island</i>	<i>13 February 2006 – 20 March 2006</i>
<i>Stuyvesant</i>	<i>27 February 2006 – 6 March 2006</i>
<i>Bayport</i>	<i>14 March 2006 – 7 April 2006</i>

Contract specifications required dredging an estimated 692,300 CY of shoal material from the entrance channel and the turning basin at Mayport Naval Station. The work was completed with a combination of hopper and clamshell dredges. Only the hopper dredging will be reviewed in this report. Dredged material was placed in the authorized upland disposal area. Dredging began on December 9, 2005 and was completed on 7 April 2006 for a total of 559 loads and 91 dredging days.

All dredges were equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers on the Bayport, Northerly Island and Eagle I were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractors, Manson Dredging, Great Lakes Dock and Dredge Co., and Bean-Stuyvesant LLC, respectively. Observers onboard the Stuyvesant were employed by REMSA, Inc under a subcontract to Bean-Stuyvesant LLC.

During the performance of this dredging, one lethal take onboard the Northerly Island was documented. The take occurred on March 3, 2006 and was an unknown age and sex loggerhead found at 1450 hours in load #114. Surface water temperature at time of take was 13.9°C.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at <http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=424&Code=Project>

Jacksonville Harbor

Columbia

Per an agreement between NMFS and SAJ, hopper dredging in the St. John's River above River Mile 6, is not required to abide by the seasonal window for sea turtles of the SARBO due to the low salinity of the river. However, the Jacksonville District has agreed to maintain the current requirements for observers and screening in the SARBO.

Dredging began on July 1, 2006 and was completed on August 10, 2006. The contract dredge *Columbia* operated under a "rental contract". Instead of being paid by CY, the contractor is paid by the number of days it takes to complete the project. In this case, it took the dredge 39 days to remove the shoal material consisting of 148 loads. The dredged material was placed in the Buck Island upland disposal site, Cell B.

The dredge was equipped with a rigid draghead turtle deflector, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of the draghead (The *Columbia* has a single draghead) and screens for each load cycle. During the performance of this dredging, no lethal takes were observed. The observers were employed by East Coast Observers, Inc. under a subcontract to the dredging contractor, B&B Dredging.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at <http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=453&Code=Project>.

Projects Begun in FY2006 – Continuing into FY2007

Jupiter Island Beach Renourishment

Dodge Island

On February 3, 2006 the contract hopper dredge *Dodge Island* began work on the Jupiter Island Beach Restoration in Martin County, Florida. The contractor dredged 869,655 CY of beach quality sand (as defined by the Florida Department of Environmental Protection) and placed it on Jupiter Island.

Dredging began on February 3, 2006, and ceased on April 27, 2006. The project ceased material placement due to the sea turtle nesting window (no beach placement between May 1 and October 31) imposed on the project by the U.S. Fish and Wildlife Service's biological opinion dated December 8, 2005 under Section 7 of the Endangered Species Act. A total of 393 loads of dredged material were collected during 82 dredging days and deposited in the permitted beach template. The project is scheduled to begin dredging again to complete the original project design during FY 2007.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Great Lakes Dock and Dredge Co. Surface water temperatures ranged from 18.3 °C -26.6 °C for the life of the project.

During the performance of this dredging, one lethal take was observed on April 23, 2006 and was an adult female loggerhead found at 0520 hours in load #357. Surface water temperature at time of take was 25.6°C.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at <http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=422&Code=Project>

COSTS

The costs incurred in performing the turtle-monitoring program during FY 2006 include the costs for equipping and maintaining screens and draghead deflectors on contractor-owned dredges, as well as providing NMFS-approved observers and relocation trawling. In addition to the direct costs are District costs for administration and oversight. Table #1 depicting the costs of monitoring, relocation trawling and dredge inspection for FY 2006. However, this table does not include costs of administration and oversight activities conducted by SAJ staff, or the unquantifiable costs associated with decreased dredging efficiency which may result from the use of the draghead deflectors, and downtime experienced during cleaning of excessively fouled screens. Estimates of these increased costs are anticipated by the potential contractors during the preparation of bids, and there is no way to determine the actual value of these costs. The Corps also does not capture the costs beyond the cost of inspections associated with projects permitted by the Corps' Regulatory Division in its permitting of private projects that utilize hopper dredges.

SUMMARY

During Fiscal Year 2006, six maintenance-dredging or beach re-nourishment projects were constructed using hopper dredges. Five turtles were taken lethally by the projects conducted in FY2006. Table #2 summarizes lethal turtle encounters. No relocation trawling was performed in association with any hopper dredging project on the Atlantic coast of Florida in FY2006.

TABLE #1
 COSTS ASSOCIATED WITH PROTECTION OF SEA TURTLES
 DURING HOPPER DREDGING
 JACKSONVILLE DISTRICT – ATLANTIC COAST PROJECTS
 MAINTENANCE DREDGING/BEACH RENOURISHMENT
 FY2006

PROJECT	COST OF MONITORING	COST OF RELOCATION EFFORTS	COSTS OF INSPECTIONS
Palm Beach Harbor	\$5,850	NA	\$2,000
Kings Bay Entrance Channel	\$6,500	NA	\$1,700
Miami Harbor Entrance Channel	\$9,000	NA	\$5,956
Mayport Turning Basin and Entrance Channel	\$65,408	NA	\$975
Jacksonville Harbor	\$46,640	NA	\$325
Broward County Shore Protection Project	Cost listed in FY2005 Report	NA	Inspected in FY 2005
Jupiter Island Beach Renourishment Project	NT	NA	\$3,632
TOTAL	\$133,398	\$0.00	\$14,588

TABLE #2
INCIDENTAL TAKES OF SEA TURTLES
JACKSONVILLE DISTRICT – ATLANTIC COAST PROJECTS
MAINTENANCE DREDGING/BEACH NOURISHMENT
FY 2006

Date Taken	Project	Dredge	Channel Reach/ Borrow Area	Water Temp. (°C)	Species and Authorized Incidental Take per Fiscal Year			
					Kemp's ridley 7	Loggerhead 35	Green 7	Hawksbill 1
22 Feb 2006	Kings Bay	<i>Stuyvesant</i>	30' 42.85N 81' 17.70W	16		1		
25 Feb 2006	Kings Bay	<i>Stuyvesant</i>	30' 42.7N 81' 19.1W	16		1		
25 Feb 2006	Kings Bay	<i>Stuyvesant</i>	30' 23.70N 81' 24.48W	14.4	1			
3 Mar 2006	Mayport	<i>Northerly Island</i>	30' 23.861N 81' 24.739W	13.9		1		
20 April 2006	Jupiter Island	<i>Dodge Island</i>	27' 05.12N 80' 06.05W	25.6		1		
TOTAL TAKE					1	4	0	0
ALLOWABLE TAKE REMAINING					6	31	0	0